SPC Marc B. Aquino, 1st Battalion, 497th Field Artillery Regiment, Hawaii National Guard, runs two miles as part of the Army Physical Fitness Test at Camp Arifjan, Kuwait, May 13. (Photo courtesy of 20th Public Affairs Division)

Artillery Fit: physical fitness while deployed

By Majors G. Damon Wells and Shawn M. Bault, both FA

Today's artilleryman faces two unique problems pertaining to combat readiness. First, extended deployments are degrading artillery specific mission-essential task list and military occupational specialty related skills because many Redlegs are performing various nonstandard missions during multiple deployments. The artilleryman's diverse skill set and rapid adaptability, while providing much needed manpower in the War on Terrorism, has contributed to the decline of core competencies and associated functional fitness. Secondly, in the post-deployment period known as reset, units fail to maximize physical training time. Units generally focus most of their training time on mission-essential tactical and technical competencies, while either neglecting or incorrectly training the physical component to combat readiness.

To regain combat readiness more effectively and optimally during reset and to sustain that readiness during deployment, an approach to physical training that is both efficient and mission-essential task list focused is necessary. A sensible solution is an emphasis on functional-fitness training, both austere (combat) and traditional that enhances mission-essential tactical and technical competencies, while maximizing training time.

Physical fitness is the foundation of a Soldier's combat readiness. Soldiers need a combination of health- and skill-related fitness components, such as muscular strength and endurance, cardiovascular strength and endurance, flexibility, agility, balance, coordination, speed, power, plus a level of "functional fitness" which is the ability to transfer these components to efficient movement.

Functional fitness consists of a broad array of natural or realistic physical work that involves multiple planes and joints. For Soldiers, this work includes all the tasks associated with combat performance. Essentially, functional training results in the body being trained the way it needs to move to perform optimally. The end state is enhanced Soldier performance on the battlefield. Nowhere is this more apparent than in the artillery, more specifically, in a light cannon battery where Soldiers execute a myriad of individual tasks that require lifting, pushing, pulling, jumping and running. One could argue that the Military Occupational Specialty 13B Cannon Crewmember is one of the most functional jobs in the Army and has increased in functionality due to recent nonstandard missions in Afghanistan and Iraq.

Physical training should be used to develop and enhance the physical components within a unit's mission-essential task list. Commanders must ask themselves, "What is the purpose and relevance of our physical training?" As with field operations, if the answer is not based on the mission-essential task list, then the unit is using its time and energy inefficiently. Time is precious; units must reset rapidly and prepare efficiently for their next mission in the War on Terrorism. The field artillery, often required to perform infantry, engineer, military police and transportation tasks, must be even more vigilant in taking advantage of training time. This article discusses physical fitness training for a light cannon battery and provides a mission-essential task list based physical training program focused on a functional fitness concept that leaders can implement at any time, but especially during reset and deployment operations, ensuring 13B combat readiness.

Reset: regaining skills and fitness. A recurring problem in the Redleg community is the gradual degradation of artillery-specific functional fitness during extended deployments. The artilleryman frequently finds himself learning and performing missions that have nothing in common with his traditional mission. As a result, his technical and tactical skills decay, as does his fitness level. Finding the time to conduct physical training during a deployment is often difficult. Inadequate facilities, dangerous conditions, lack of time and environmental hazards are all

roadblocks to fitness in theater. The result is a Soldier who redeploys at a fraction of his original fitness capacity.

Also, upon redeployment, most units take 30 days of leave and require an additional 30 days of physical training before conducting their first Army Physical Fitness Test. This is reasonable, but the time spent focusing on the health-related components can be decreased by maintaining fitness throughout the deployment (when able) and increasing training efficiency upon redeployment. Most post-deployment physical fitness programs incorrectly focus on increasing the Soldiers' fitness levels to score well on the Army Physical Fitness Test. While this practice is based on good intentions, it is the wrong approach.

A more effective method for the artillery unit is shifting the focus from Army Physical Fitness Test requirements to mission-essential task list related events. A base level of fitness must be achieved and maintained, but a unit cannot complete reset successfully if they are not combat ready by the end of the phase.

This certainly includes a level of specific fitness for the cannoneer. The following exercises and workout descriptions are applicable to both austere and reset situations and can increase Soldier proficiency significantly and reduce non-mission capable time after deployments.

The functional training concept. Functional fitness training is a dual-purpose concept. First, it allows a unit to improve general fitness that is conducive to better health and contributes to the health related components of fitness (cardiorespiratory fitness/endurance, muscular strength endurance, etc.). More importantly, the application of a functional fitness concept permits units to improve specific tasks that contribute to their wartime mission (tactical and technical proficiency). Functional training involves conditioning the body for movement. In this case, that means preparing Soldiers for the functions of combat operations. After a recent, thorough analysis from past operations in Operations Enduring and Iraqi Freedom, it was discovered that a significant number of preventable muscle injuries were due to overuse and dysfunctional movement.

Organizations such as the U.S. Marine Corps, 75th Ranger Regiment and the Fires Center of Excellence have recognized and adapted to this fact. Both the Marines and the Rangers see themselves as combat athletes in their preparation for combat. To them, the process is similar to a collegiate or professional athlete's preparation for his sport. Athletes spend hours focusing on strengthening and mastering the body mechanics required of their sport. In the same manner, Soldiers need a comprehensive fitness program that develops the physical skills needed for combat, regardless of the environment.

The program. It is no secret that the light cannoneer exerts significant physical effort during the course of combat operations. The process of preparing a howitzer for operation, preparing ammunition and executing fire missions in a hostile environment can have adverse effects on even the fittest Soldier. A well planned and executed functional fitness regimen positively impacts a unit's level of success and decreases injury rates significantly due to the practice of proper body mechanics.

The cannoneer does not have to be a muscle-bound strongman to accomplish his mission effectively, but the benefits of muscular strength and endurance training certainly lead to a faster and more proficient crew. Along with the obvious health benefits and ability to work harder and longer under stress, the motor skills developed through rigorous mission focused and functional training will lead to improvements in mission execution as well.

Emplacing a M119A1 howitzer for a night raid involves moving thousands of pounds in equipment under stressful conditions with limited time and personnel. Each physically demanding portion of this endeavor can be recreated and practiced during morning physical training. Some examples of specific movements within the 13B's repertoire are lifting the trails of the howitzer, pushing the howitzer onto the base plate and handling ammunition.

Lifting. The initial lift of the trails involves a significant percentage of the musculature of the entire body. Great strength is required in the legs, back, core and forearms to complete this task properly. This movement can be trained in a number of different ways. It is simulated in the gym with a traditional "deadlift." Proper deadlift training increases the strength of all of the applicable muscles.

In austere conditions, where fitness equipment is lacking, this can be simulated with heavy water cans, ammunition cans, weighted litters or a variety of methods that use resistance lifted from the ground to an upright position. Any repetition scheme can be used, but two to five sets of six to 10 repetitions are optimal to develop strength. An ancillary benefit of training deadlift-type movements is the strengthening of the core, including the lower back. This, in turn, reduces the number of lower back injuries sustained during training and combat.

Another effective exercise is the "farmer's walk." This involves picking up two equally heavy items and walking a set distance. This movement is functional because there are many situations in which Soldiers must carry heavy loads for a distance. The weight and the distance can vary. Relay races are a great tool to increase performance through competition.

Pushing. The Soldiers also must push the howitzer off of the platform and onto the base plate, requiring a great deal of physical effort. This movement involves the legs, core, arms and shoulders. It also demands an explosive push, which requires a slightly different training technique. In the gym, Olympic lifts such as the "clean and jerk" are optimal for developing explosive power.

In the Army, however, Olympic lifts are not preferred training exercises due to the intense learning curve, so other methods must be employed. "Jump squats" performed with added resistance are a good exercise for developing ground-based power. To complete one repetition, the Soldiers "bear hugs" some sand bags or a rucksack and from the squatting position, forcefully jumps as high as possible and lands back into the squatting start position.

The bottom half of this movement can be simulated with "depth jumps" from a platform. Besides enhancing the pushing aspect, "jump squats" and "depth jumps" also ensure proper body kinesthetics when jumping and landing, such as dismounting from a vehicle during firing point occupation or from a helicopter during air assaults.

The "push press" is another great upper-body power exercise. Start by holding a weighted object at shoulder level and then rest it on the front of the shoulders. Forcefully push the weight up to an arms-locked position. Under control, return the weight to the starting position. Results from power exercises are achieved best with four to six repetitions and less than three sets.

Carrying. Handling ammunition is another duty that requires a great deal of muscular strength and endurance. Soldiers must have superior grip and arm strength, as well as leg and lower back strength to perform this demanding task for a high number of repetitions. Medicine ball training simulates these tasks well. If medicine balls are not available, sand bags wrapped with tape or even rocks are suitable substitutes.

With these training tools, the "carry and load drill" is an effective exercise. This involves carrying a weighted object from one point to another and placing it on a raised platform, such as the tailgate of a high-mobility multipurpose wheeled vehicle. Using nonstandard tools like

Dead lift: Lift two equal-weighted objects from the ground to an upright position. Two to five sets of six to 10 repetitions is optimal.

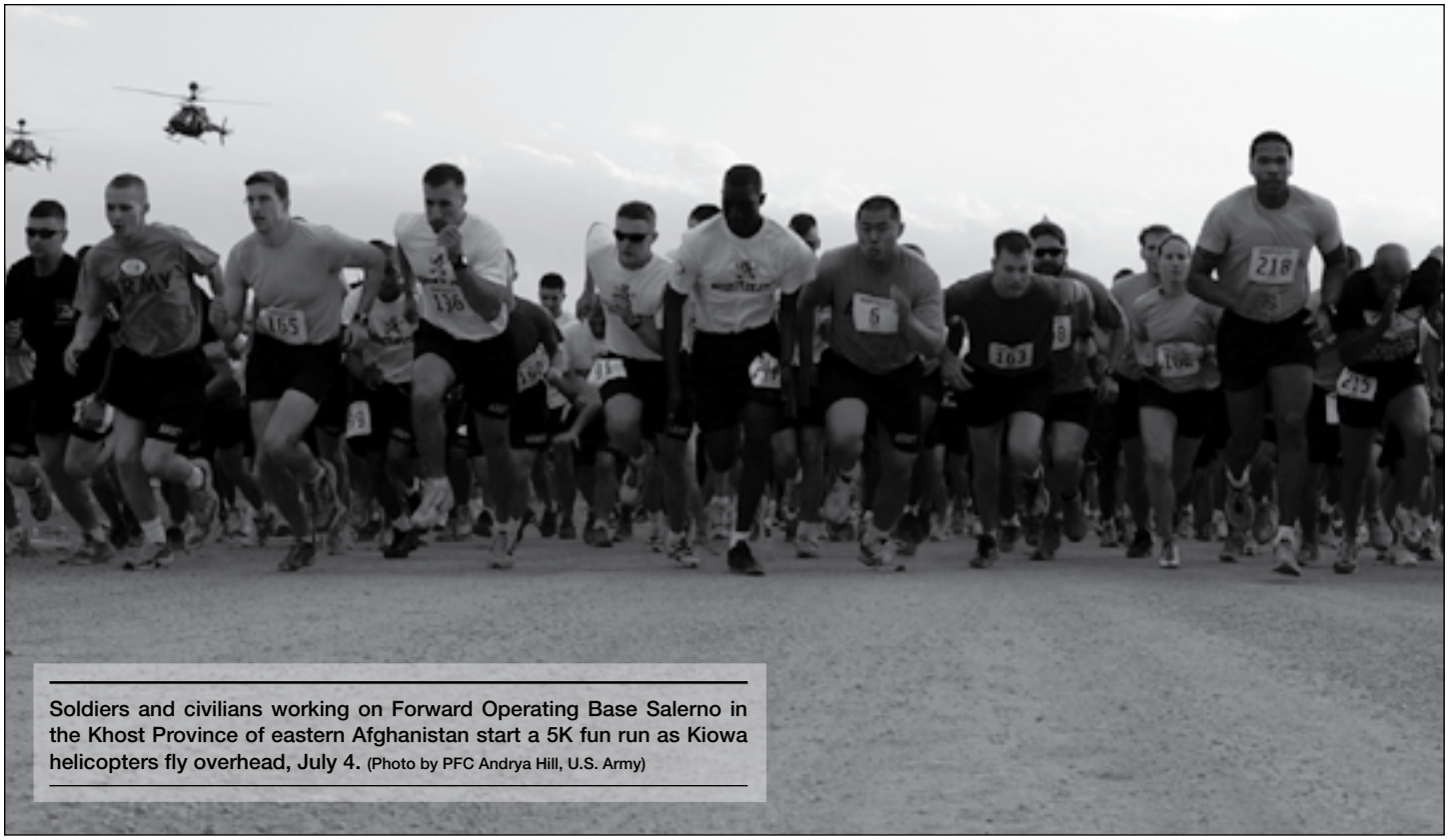
Jump squats: Starting from a squatting position, forcefully jump as high as possible and land back into the squatting start position. Hold weighted objects for more resistance.

Farmer's walk: Pick up two equally heavy items, such as water or ammunition cans, and walk a set distance. The weight and the distance can vary.

Depth jumps: Jump from a raised platform, such as a vehicle tailgate, landing in a squatting position. Hold weighted objects for more resistance.

Push press: Hold a weighted object at shoulder level. Push the weight up to an arms-locked position. Under control, return the weight to the starting position.

Carry and load: Carry a weighted object from one point to another and place it on a raised platform.



Soldiers and civilians working on Forward Operating Base Salerno in the Khost Province of eastern Afghanistan start a 5K fun run as Kiowa helicopters fly overhead, July 4. (Photo by PFC Andrya Hill, U.S. Army)

and sandbags increases the training effect as Soldiers are forced to accommodate various gripping techniques.

The exercises described in this article are far from all-inclusive. There is a great variety of functional exercises for the light artilleryman that should be applied during physical training programs. Functional strength and power programs may be integrated into the battery's physical training program on an alternating day schedule with lower intensity, traditional workouts on the off days.

For example, a battery may implement the functional training on Monday, Wednesday and Friday, and perform ability group runs and calisthenics on Tuesday and Thursday. The benefit of this schedule is that it allows leaders to build a strong base of fitness during the reset period, while building core competencies and fitness simultaneously.

Obviously, the example exercises will benefit any unit or Soldier performing them. Functional fitness is a concept that the Army as a whole must embrace and implement. The goal is to pick exercises that directly mimic, as close as possible, some portion of the unit's mission-essential combat tasks.

Any unit with physical tasks on their mission-essential task list can benefit from a functional fitness concept, not just the light artillery. Units that lack physically demanding mission-essential task lists can implement training based on Warrior Tasks or theater-specific physical tasks. The light artillery gunners are a great model because their job is particularly physically and functionally demanding.

Traditionally, light artillerymen build their fitness base around a long group run, calisthenics and moderate-to-high intensity workouts. We propose a paradigm shift, moving the focus to short-burst, high-intensity workouts. There always will be a place for running, push-ups, pull-ups and sit-ups. They are excellent exercises and can compliment any fitness routine; however, a unit's physical training regimen must reflect its combat mission.

For the light artillery, that means a functional approach of quick bursts of power intervals as the base program, supplemented with both high- and low-intensity cardiovascular training to ensure prolonged mission endurance.

By properly incorporating a functional fitness concept based on the mission-essential task list, a unit can take full advantage of precious training time — not just in the field or on the range, but also during physical training, enhancing unit combat readiness. ▪

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